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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,122	11/09/2005	Helmut Schlitz	3926.215	4364

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TAMPA, FL 33634

EXAMINER

NGUYEN, VU Q

ART UNIT	PAPER NUMBER
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3683

MAIL DATE	DELIVERY MODE
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07/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/556,122

Applicant(s)

SCHLITZ ET AL.

Examiner

Vu Q. Nguyen

Art Unit

3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 November 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/25/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: slots 34 and end bores 36. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: reference character 30 in Fig. 4. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted

Art Unit: 3683

after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

On page 1, paragraph 0003, "the bases of silicon carbide" should be --the basis of silicon carbide--.

On page 2, paragraph 0008, "The bake disk" should be --The brake disk--.

On page 5, paragraph 00018, 2nd sentence, "the friction ring 14 and in the brake disk hub 16" should be --the friction ring 4 and in the brake disk hub 6--.

On page 6, paragraph 00022, 5th sentence, "Both in turn feature an ring land 8 respectively 10 which overlap each other" should be --Both in turn feature a ring land 8 and 10 respectively, which overlap each other--.

Appropriate correction is required.

Claim Objections

3. Claims 4-6 are objected to because of the following informalities:

In claim 4, "the connecting pin (20) is" should be --the connecting pins (20) are-- for consistency among the claims.

In claim 5, "the recesses (16) in the brake disk hub (6)" should be --the recesses (16) in the ring land (10) of the brake disk hub (6)-- for consistency among the claims.

In claim 6, "the bases" should be --the basis--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the elements" in line 7 of the claim. Claim 1 also recites the limitation "the recesses (22) of the support ring" in line 15 of the claim. There is insufficient antecedent basis for these limitations in the claim.

Claim 2 recites the limitation "the connecting pins (20) are shrunk into the recesses (22)". It is unclear exactly how the connecting pins are "shrunk into" the recesses.

Claim 4 recites the limitation "bolted". Since there is no support for the term in the specification, it is unclear which embodiment or figure is being referred to. Thus, it is unclear what limitations are imparted by the recitation of "bolted".

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by British Patent Document GB 1412758 (Warrallo).

Regarding claim 1, Warrallo discloses in Fig. 5, a brake disk (3) with at least one friction ring (9) which is connected to a brake disk hub (1) by means of a joining arrangement (7) in which the friction ring and the brake disk hub each feature a concentric ring land (6, 14) and the ring lands of the friction ring and the brake disk hub overlap (see Fig. 5), wherein elements of the joining arrangement pass through recesses in the ring lands (see bolts 7 passing through recesses in ring lands 6, 14 in Fig. 5), said brake disk further comprising a support ring (5) such that the ring land of the friction ring is located between the support ring and the ring land of the brake disk hub (see Fig. 5), wherein the ring lands are connected by means of connecting pins (7) which are fixed in recesses of the support ring.

Regarding claim 3, see Fig. 5 and connecting pin 7 with a thread and nut on the right side of the ring land 14 of the brake disk hub 1.

Regarding claim 4, the Examiner respectfully submits that in Fig. 5, the connecting pin 7 can be said to be bolted (as broadly recited) into the support ring 5.

Also see the various embodiments having different connections in Figs. 6 and 8, as well as the 112 rejection above.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over British Patent Document GB 1412758 (Warrallo) in view of U.S. Patent No. 6357561 (Ruiz).

Warrallo discloses a brake disk as applied to claims 1, 3, and 4 above.

Warrallo does not disclose expressly that the connecting pins 7 are shrunk into the recesses in the support ring 5.

Ruiz discloses a brake disk 410 and the use of shrink fitting within a recess 412 (column 4, lines 55-61). As best understood (see 112 rejection above), shrink fitting reads on the limitation "shrunk into".

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the connection pins of the brake disk as taught by Warrallo so that they are shrink fitted as taught by Ruiz. The suggestion/motivation for doing so would have been to retain the connecting pin within the recess by a technique that lends itself to convenient assembly, as taught by Ruiz (column 4, lines 55-56). Also, the use

Art Unit: 3683

of shrink fitting is well-known to those of ordinary skill in the art as a simple and reliable alternative for forming a connection.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over British Patent Document GB 1412758 (Warrallo) in view of U.S. Patent Application Publication No. 2002/0157908 (Burgoon et al.).

Warrallo discloses a brake disk as applied to claims 1, 3, and 4 above.

Warrallo does not disclose expressly that the recesses in the ring land 14 of the brake disk hub 1 are open radially outwards.

Burgoon et al. discloses a brake disk 18 connected to a brake disk hub 12 by a joining arrangement 24. The brake disk hub further comprises a recess 16 that is open radially outwards (Figs. 3-5).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the brake disk as taught by Warrallo so that the brake disk hub has recesses that open radially outwards as taught by Burgoon et al. The suggestion/motivation for doing so would have been to accommodate thermal expansion/distortion of the brake disk, as taught by Burgoon et al. (page 5, paragraph 0077).

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over British Patent Document GB 1412758 (Warrallo) in view of U.S. Patent Application Publication No. 2002/0153214 (Bauer et al.).

Warrallo discloses a brake disk as applied to claims 1, 3, and 4 above.

Warrallo does not disclose expressly that the friction ring 9 consists of a fiber reinforced ceramic on the basis of silicon carbide.

Bauer et al. disclose the use of fiber reinforced ceramics with matrices based on silicon carbide as material for friction rings (page 1, paragraph 0003).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the brake disk as taught by Warrallo so that the friction ring is made of a fiber reinforced ceramic on the basis of silicon carbide as taught by Bauer et al. The suggestion motivation for doing so would have been to provide good tribological characteristics up to the highest loads and temperatures, as taught by Bauer et al. (page 1, paragraph 0003).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: U.S. Patent No. 6035507, U.S. Patent No. 6098764, U.S. Patent Application Publication No. 2004/0031651.

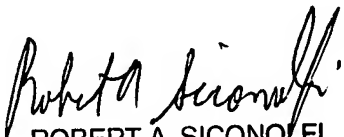
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vu Q. Nguyen whose telephone number is (571) 272-7921. The examiner can normally be reached on Monday through Friday, 11:30 AM to 8:00 PM, EST.

Art Unit: 3683

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

VQN

 7/23/07
ROBERT A. SICONOLFI
SUPERVISORY PATENT EXAMINER